BY ORDER OF THE
SECRETARY OF THE AIR FORCE

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Financial Management

INFLATION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OPR: SAF/FMCEE
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This instruction implements AFPD 65-5, *Cost and Economics,* by setting guidelines for inflation adjustments in the Air Force Planning, Programming, and Budgeting System (PPBS). Air Force personnel must use the method of inflation adjustment prescribed in this instruction in the PPBS. This instruction dictates how to apply the inflation rates provided by the Office of the Secretary of Defense (OSD) and indicates how SAF/FM generates inflation indices and distributes them to the field for converting both constant and then-year dollars. Attachment 1 defines some key terms used in this instruction.

SUMMARY OF CHANGES

This revision aligns the instruction with AFPD 65-5.

1. Inflation Adjustment Requirements. Office of Management and Budget (OMB) Circular A-11 requires applying assumptions about inflation in budget estimates. AFPD 65-5 also requires SAF/FMC to develop Air Force inflation indices for cost and economic analysis programs.

1.1. OSD(C) prescribes appropriation level inflation and outlay rates that the Air Force must use in the PPBS, unless OSD grants a specific exemption. Ordinarily OSD provides yearly revised inflation rates, along with the President's Budget. OSD rates apply to the:

- Program Objective Memorandum (POM).
- Budget Estimate Submission (BES).
- President's Budget Request.
- Future Years Defense Program (FYDP).

1.2. The Deputy Assistant Secretary, Cost and Economics (SAF/FMC) develops Air Force inflation indices based on OSD rates. Analysts must use these indices in all budget materials, including multi-year budget planning estimates and current services estimates.

1.3. OSD also prescribes rates of price changes for major items or categories in the industrial and stock funds, and in the customer accounts. For example, OSD prescribes prices for petroleum, oil, lubricants (POL) in the stock fund, and for wage board pay in the industrial fund. Individual commands (with OSD approval) establish more detailed prices in the industrial fund.

1.4. Air Force analysts must use SAF/FMC inflation indices for cost and economic analysis programs required by AFPD 65-5. Paragraph 1.4 further instructs you on using inflation indices in these programs and on exceptions to this requirement.

2. Responsibilities:

2.1. SAF/FMC is the Air Force office of primary responsibility (OPR) for inflation matters. SAF/FMC:

- Prepares inflation indices based on guidelines from OMB, mediated by the Office of the Secretary of Defense, Comptroller (OSD[C]).
- Provides appropriation level inflation indices to the Deputy Assistant Secretary, Budget (SAF/FMB), other Secretariat and Air Staff offices and major commands (MAJCOM), field operating agencies (FOA), and direct reporting units (DRU).
- Loads the inflation indices on the electronic Air Force Financial Management Analysis Bulletin Board (FMABB). (Contact the system operator at SAF/FMC for access.) FMABB includes the inflation indices as official updates to

AFI 65-503, *US Air Force Cost and Planning Factors*. SAF/FMC recommends the Air Force Inflation Tutorial, a computer program which lets action officers make fast, error-free inflation conversions. SAF/FMC updates this program annually and makes it available on request.

2.2. HQ AFMC/FM is the OPR for producing inflation data sheets, based on SAF/FMC inflation indices, for all major weapon systems. HQ AFMC/FM can delegate preparation of inflation data sheets for weapons systems with specially approved inflation rates to a System Program Office (SPO). Do not use the general SAF/FMC inflation indices for programs with specially approved rates, since the special rates differ in certain years from the general indices. HQ AFMC/FM provides updated inflation data sheets for all major weapon systems to SAF/FMC annually.

3. PPBS Procedures. All products of the PPBS use the approved inflation indices for that particular category as provided by SAF/FMC, except as follows:

3.1. SAF/FM Budget Operating Appropriations Division (SAF/FMBO) can establish and use a detailed breakdown of inflation rates within the operations and maintenance (O&M) appropriation. In this case, the sum of inflation for all of the items, weighted by the proportion of each item to the total appropriation, must equal the O&M weighted index prescribed by OSD, as transmitted by SAF/FMC.

3.2. Military and Civilian Pay and Allowances. You must present military and civilian pay and allowances (personnel related costs) in constant-year dollars. To price these items, use the approved rates in effect at the time you submit the document. For example, for the FY 1991 BES prepared in September 1989, the 1 January 1989 pay scale was used. The same pay scale is used for each year of a multiyear submission (POM, FYDP, etc.).

3.3. Weapon System Pricing. Apply the following procedures for weapon system pricing to the program estimates of HQ AFMC:

3.3.1. Apply the latest appropriate OSD inflation and outlay rates to the most recent estimate of the program cost (best estimate) to generate a then-year dollar Total Obligational Authority (TOA) requirement for the outyears. The best estimate is usually the latest cost estimate of the program completed in constant dollars of a specific year. In some cases, the best estimate may be the original base-year dollar estimate of the program. In theory, a recent best estimate is better than an older estimate escalated with inflation factors for many years.

3.3.2. Exemption From Using OSD-Prescribed Rates . To price then-year dollars for major weapon system procurement, use SAF/FMC inflation indices unless OSD has granted an exemption. The SPO can request exemptions based on unique, well-documented contractual arrangements between the SPO and the prime contractor, or between the United States and allies co-producing a weapon system, for example, the F-16.

To process an exemption request:

- SPOs forward a request for exemption to AFMC/FM, which must concur with the request.
- AFMC/FM then forwards the request to SAF/FM.
- SAF/FM coordinates and obtains other Secretariat and Air Staff coordination,
- SAF/FM forwards the request to OSD for approval.

A request for an exemption from OSD inflation and outlay rates should do the following:

- Justify why OSD rates should not apply to the program.
- Present proposed rates, their source and methodology, and why they apply.
- Compare OSD and proposed rates, and indicate the dollar impact of the difference on the approved program.

4. Air Force Cost and Economic Analysis Program Procedures:

4.1. Cite the source and date of any inflation rates you used in a cost or economic analysis.

4.2. When you submit cost analyses and estimates to the Air Force Secretariat, Air Staff, or higher, use the latest SAF/FM inflation indices. As a rule, use the latest OSD-approved inflation rates for specific appropriation categories when cost elements are closely related to one of the appropriation categories for which OSD provides inflation rates (for example, O&M, procurement, RDT&E, military construction, etc.). These rates remain in effect until superseded by subsequent SAF/FM direction.

4.3. SAF/FM's inflation indices cover the basic appropriation accounts.

4.3.1. In some cases, such as medical expenses, certain categories of energy costs, or foreign inflation, special rates of inflation may be appropriate. SAF/FM can help commands assess whether or not special rates are appropriate, and can help obtain such special rates when they are available, or can be constructed.

4.3.2. If an analysis deals with a specific subcategory of the economy for which OSD does not provide rates (for example, coal, steel, auto, etc.), you can use other sources, such as historical indices published by the Bureau of Labor Statistics in the Survey of Current Business, forecasts of the Department of Energy, or reputable economic forecasts.

4.4. To estimate future inflation, including specific subcategories, use the appropriate SAF/FM inflation index. However, you should usually analyze the data using different inflation rates (i.e., a sensi-

tivity analysis) to demonstrate the possible effects of future inflation. Since reviewers can more easily analyze cost estimates prepared in constant dollars, convert costs to a base (constant) year. Attachment 2 provides instructions on inflation conversions.

5. Selected Acquisition Report (SAR) Procedures. Inflation estimates for SARs reflect the OSD rates used in the President's Budget. SAR data is generally not adjusted for the revised inflation rates used at several phases throughout the budget cycle.

JOHN W. BEACH
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Attachment 1

GLOSSARY OF TERMS

Terms

Base Year—is a point of reference that represents a fixed price level, usually defined as the fiscal year when a program was initially funded. Expressing program costs in a specified base year is the same as expressing those costs in constant year dollars of the same year.

Base-Year Dollar—reflects the dollar's value at the midpoint (April 1) of a given base year and implies this value throughout the base year. When cost estimates are in base-year dollars, the purchasing power of the dollar remains the same over the estimated time period.

Constant-Year Dollar—reflects the value or purchasing power of a dollar in any specific year, which may or may not be the base year. constant-year dollars do not contain any adjustments for inflation that occurred or is forecast to occur outside the base year. Constant-year dollars are not influenced by outlay profiles (expenditure patterns). Also known as Real Dollars.

Current Dollar—implies adjustment for variation in the purchasing power of a dollar over time. From an economics perspective outside the Department of Defense (DoD), a current dollar is not influenced by outlay rates (expenditure profiles). However, guidelines from OSD (Comptroller) and OMB (see current dollar analysis in OMB Circular A-94) does not distinguish between current dollars and then-year dollars. Therefore, for Air Force financial management activities current dollars are identical to then-year dollars.

Escalate—generally means to increase. In this instruction, escalation is an increase in costs due to inflation, calculated by applying an inflation index. However, in certain years applying an index can result in decreasing costs. Also, costs can escalate for other reasons than inflation, e.g., increase in a building's maintenance costs due to age. Such increases are not included in inflation indices.

Major Weapon Systems—Joint Publication 1-02 defines a major weapon system as one of a limited number of systems or subsystems which, for reasons of military urgency, criticalness, or resource requirements, is determined by DoD as vital to the national interest. DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures,* February 23, 1991, with Change 1, defines dollar thresholds for major systems.

Normalization—eliminates inflationary or deflationary impacts contained in historical cost data. Referred to as Normalization for Economic Changes, it usually means converting then-year dollar amounts to program base-year dollar amounts.

Outyears—are the years after the first year of a budget or analysis.

Price Relative Index—expresses the percentage change in the price of a single commodity from one time period to another. It is calculated by dividing the price at time period two (T2) by the price at time period one (T1).

Raw Inflation Indices—convert from base-year (constant-year) dollars in 1 fiscal year, to base-year (constant-year) dollars in a different fiscal year. Raw inflation indices are not influenced by outlay profiles. Also known as Price-Level Indices.

Real Program Growth—is the year-to-year change in program funding expressed in constant-year dollars. Usually displayed as a percentage, you can compute it by dividing the constant-year dollars in one year by the constant-year dollars of the previous year and subtracting 1.000.

Total Obligational Authority (TOA)—is the financial requirement of the Future Years Defense Plan, or any component thereof, needed to support the approved program of any fiscal year. Always expressed in then-year or current dollars.

Weighted Inflation Indices—combine raw inflation indices with outlay profiles to illustrate the lag effects of inflation caused by spending money over a multiyear period. Use weighted inflation indices to inflate base-year dollars to then-year dollars or to deflate then-year dollars to base-year dollars. Weighted inflation indices are often referred to as composite indices, especially by the other military Services and OSD.

NOTE: Appropriations for personnel and fuel are assumed to be expended in the fiscal year of obligation. Therefore, these appropriations have no outlay profile and do not use weighted inflation indices.

Attachment 2

USING INFLATION INDICES

A2.1. Defining Inflation. The strict, academic definition of inflation is an increase in the amount of currency in circulation that results in an increase in the general level of prices.

A2.1.1. In common usage inflation means a general increase in prices. During inflationary periods, not all prices rise. Some may remain relatively constant, and others may actually fall, for example, the relative price decline of automated data processing (ADP) equipment during the 1970s.

A2.1.2. Inflation does not mean that prices rise evenly. Differences in supply and demand in various markets may cause the prices of some commodities to rise faster than others.

A2.2. Measuring Inflation. The following is an example of the method of measuring inflation:

- Assume that our economy contains only three commodities: wheat, wine, and jogging shoes. Each commodity represents 70, 20, and 10 percent of personal consumption expenditures. Also assume that these proportions are fixed over time, and that the quality of the three items is always the same. Table A2.1 provides additional information:

Table A2.1. The Three-Product Economy Model.

Year	Price of Wheat per Bushel	Price of Wine per Bottle	Price of Shoes	Aggregate Price	% Change From Year 1	Inflation Index
1	2.00	5.00	20.00	4.40	--	1.000
2	2.10	6.00	25.00	5.17	17.5	1.175
3	2.20	6.50	35.00	6.34	44.1	1.441
4	3.00	8.00	40.00	7.70	75.0	1.750
5	2.90	8.20	49.00	8.57	94.8	1.948

- Aggregate price is the average of commodity prices, with each price weighted by an item's contribution to total expenditures.
- You can calculate the inflation index by dividing the aggregate price in each year by the price in year 1, called the base year. Therefore, the inflation index represents a percentage comparison of inflation from a fixed point of reference.

A2.3. Calculating Raw and Weighted Indices. See table A2.2**:**

A2.3.1. Two types of inflation indices are used in DoD budget exercises, raw and weighted:

- Raw indices are similar to those illustrated above in the three-item economy.
- Weighted indices, combining raw inflation rates and outlay profiles, indicate the amount of inflation that occurs during the entire period of time required to spend the TOA.

A2.3.2. Raw Indices are based on OSD-prescribed inflation rates (percent changes from the midpoint of 1 year to another). The following formula illustrates the method SAF/FMC uses to calculate raw inflation indices:

Inflation Index: i + n = Base Year i x (1 + Rate i + 1) x (1 +Rate i + 2) x ... (1 + Rate i +n)

Where i = the base year expressed as 1.0

i + l = the inflation rate from the base year to the following year,

expressed in decimal form, for example, 5.5 percent as 0.055

i + n = the year of the desired inflation index

Table A2.2. Sample Calculation of Raw Inflation Index.

Fiscal Year	Inflation Rate RDT&E (%)	Fiscal Year	Inflation Index FY78 = 1.000
78-79	6.2	79	1.062
79-80	6.3	80	1.129
80-81	5.8	81	1.194
81-82	5.5	82	1.260
82-83	5.5	83	1.329
83-84	5.5	84	1.402

The FY 81 inflation index (where FY 78 = 1.00) = 1.0 x (1 + 0.062) x (1 + 0.063) x (1+ 0.058) = 1.194

A2.3.3. Weighted Indices. See table A2.3:

A2.3.3.1. The bases for weighted indices OSD prescribed inflation and outlay rates. The following formula illustrates the method by which SAF/FMC calculates weighted indices:

WIi = 1/ ((ORi / RIi) + (ORi+1 / RIi+1)+...+(ORi+k / RIi+k))

Where WI= the weighted index for the initial year

OR= the outlay rate for the initial year expressed as a decimal

(for example, 0.7 for 70 percent)

RI= The raw inflation index for the initial year, expressed with a

base of 1.000

i+k= the last year in the outlay profile

A2.3.3.2. Suppose that then-year dollar TOA for the F-16 in FY 1979 is $500 million. What would represent a constant dollar equivalent for that year? The following example illustrates the formula's derivation:

Table A2.3. Deriving the Weighted Index Formula.

Fiscal Year	Aircraft Procurement Raw Inflation Index	Aircraft Procurement Outlay Rates (%)
79	1.000	10
80	1.062	40
81	1.121	30
82	1.182	12
83	1.246	5
84	1.313	3

The initial 10 percent of the $500M TOA is spent in the first year at FY 1979 prices ($500 x .10). The next 40 percent is spent in the second year, but in FY 1980 dollars. Therefore, you must convert this number by dividing by 1.062 (($500 x .4)/1.062). This process continues and yields the following:

Constant FY79 F-16 TOA =[(($500x.1)/1) + ((500x.4) / 1.062+...+((500x.03)/1.313)]=$500[(.1/1) + (.4/1.062) + (.3 /1.121) + (.12/1.182) + (.05/1.246) + (.03 / 1.313)]

= $454.92

The weighted index, however, is that amount which, when multiplied by constant dollars, yields then-year dollars. Therefore, you must multiply each side of the equation by the inverse of the figures in brackets to yielding the following:

CONSTANT $ X [1 / ((.1/1) = (.4 / 1.062) + (.3/1.121) +(.12 / 1.182) + (.05 / 1.246) + (.03/1.313)] =

THEN-YEAR $ TOA

The ratio on the left side of the equation (i.e., the number resulting from the calculation in the brackets) represents the weighted index number.

A2.3.3.3. The Air Force uses a different weighted index formula than the one that follows (which OSD and the Department of the Navy use):

Constant $ TOA X (.10 x 1.000 + .40 x 1.062 + .30 x 1.121 + ... + .03 x 1.313) = Then-Year $ TOA

The formula yields a slightly different result than the previous one because it applies a then-year outlay profile to base-year indices. The Air Force weighted index is more accurate because the outlay profile is computed from and applies to then-year dollars rather than constant-year dollars**.**

A2.3.3.4. Applying Inflation Indices. The following rules apply to using raw versus weighted inflation indices:

- Use raw indices to convert constant dollars in one year to constant dollars in another year.
- Use weighted indices to convert base-year (constant) dollars to then-year TOA dollars, and conversely, to convert then-year TOA dollars to base-year (constant) dollars. Weighted indices apply to situations where money is not completely expended in the year for which it is obligated, that is, where an outlay pattern is involved.

A2.3.3.4.1. To convert then-year dollars to constant dollars:

- Go to the weighted index of the base year that corresponds to the year to which you are converting. Under the proper appropriation column (e.g., O&M), go to the index number for each of the years you want to convert from then-year dollars.
- Divide the then-year dollar amount for each year, by the index number for that particular year. The result is a dollar amount in each year, expressed in constant dollars of a particular fiscal year (e.g., constant FY93 dollars).

A2.3.3.4.2. To convert constant dollars to then-year dollars:

- Go to the weighted index with the base year that corresponds to the year from which you are converting. Under the proper appropriation column (e.g., O&M), go to the index number in each of the years you want to convert into then-year dollars.
- Multiply your constant dollar amount in each year, by the index number for that particular year. The result is a dollar amount in each year, expressed in then-year dollars.